

Hazelnut Barometer - Procurement Price Study

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Hazelnut Barometer – Price Procurement Study

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1. EXECUTIVE SUMMARY

The Fair Labor Association commissioned this study to explore the relationship between the procurement price and working conditions in hazelnut production in Turkey (with a special focus on child labor and forced labor), and review different actors' roles in the supply chain, as part of the project "Piloting the USDA Guidelines for Eliminating Child Labor and Forced Labor in the Hazelnut Supply Chain in Turkey". The report is based on field research conducted in hazelnut production sites in the provinces of Düzce, Sakarya, and Ordu with farmers, seasonal agricultural workers, public officials, firm representatives, and civil society organizations.

The field research revealed that:

- Changing social and economic conditions and legal-institutional mechanisms related to productivity allot costs and profits unevenly among the actors in the hazelnut industry. Hazelnut garden owners' and workers' share in the total value created in the global hazelnut value chain is small compared to the share commanded by suppliers and international food companies. The unevenness puts heavy economic pressures on farmers and workers.
- Turkish seasonal agricultural workers' incomes from the hazelnut harvest are below the poverty line. Wages are below the legal minimum, and overtime work is not remunerated. This study shows that workers' monthly expenses are higher than their incomes, which leaves them in a debt cycle and deprives them of a healthy diet and decent living conditions. Low wages and indebtedness result in the commodification of household labor, including having children toil with their parents in return for a daily wage.
- Having calculated a living wage for seasonal migrant workers, the study argues that farmers would not be able to pay a living wage to the harvest workers at the current price of hazelnuts and the revenues they obtain from hazelnut sales.
- Factors such as weather conditions, the diminishing sizes of hazelnut gardens and insufficient care in cultivation result in price and productivity fluctuations, have a severe impact on farmers. The majority of hazelnut farmers are aging, small hold farmers who derive a significant share of their income from the hazelnut production. As labor is the most significant cost for them, the situation perpetuates low wages, long working hours, hard working conditions, and the continued use of child labor during the hazelnut harvest.
- Mechanization of hazelnut harvest can lower production costs and increase productivity. However, mechanization is directly related to productivity and revenues, and out of the reach of many farmers in the current circumstances.

2. INTRODUCTION

Few consumers, when they snack on hazelnuts or hazelnut chocolate bars, think of the steps that go into producing these treats, including who is involved or what share of the price they pay at the supermarket reaches the workers who toil under the summer sun to harvest the hazelnuts.

As part of the project “Piloting the USDA Guidelines for Eliminating Child Labor and Forced Labor in the Hazelnut Supply Chain in Turkey,” the Fair Labor Association commissioned this study to find out how value is spread across the hazelnut supply chain, and the impact of the value distribution on workers’ wages in the hazelnut sector.

This research—the first of its kind—examines the procurement price of Turkish hazelnuts, analyzing the components that make up its value, and explores the relationship between the procurement price and working conditions in hazelnut production, with a special focus on child labor and the working conditions of seasonal migrant workers. The study also traces the share of wages in a kilogram of hazelnut chocolate and a kilogram of chocolate hazelnut spread.

1. Turkey is the world’s leading hazelnut producer with a 75 percent share of global production. In Turkey, hazelnuts are mostly produced in the Black Sea region by small hold farmers, who hire seasonal migrant workers for the summer harvest. Despite the increasing volume of hazelnut production in other parts of the world, the Turkish hazelnut retains its popularity among chocolate producers due to its quality and taste. Past research has demonstrated that geographical appellation is an important mechanism to protect the quality of a good and affect its price.¹ Since 1995, laws enable and encourage geographical indication of place of production in Turkish agriculture.

2.1 Who are the actors in the Hazelnut Global Value Chain (GVC)?

Globally, hazelnut is an important ingredient in the confectionary industry. It is used in the making of hazelnut spread, chocolate bars with hazelnuts, bakery products, confectionery, and ice creams. Roasted hazelnuts are also consumed as snacks.

The hazelnut value chain is typical of Global Value Chains (GVC),² where a commodity is primarily produced in countries in the Global South, and its manufacture into consumer products largely takes place in countries in the Global North.³ Thus, it is a GVC in which a multitude of producers grow or produce the raw commodity while a handful of international food companies purchase the majority of the world supply.

The figure below describes the various segments of the hazelnut GVC, and the activities and actors involved in each of them. The research team used qualitative methods to analyze the first five segments of the value chain. The team also performed a quantitative analysis of the composition of value in the

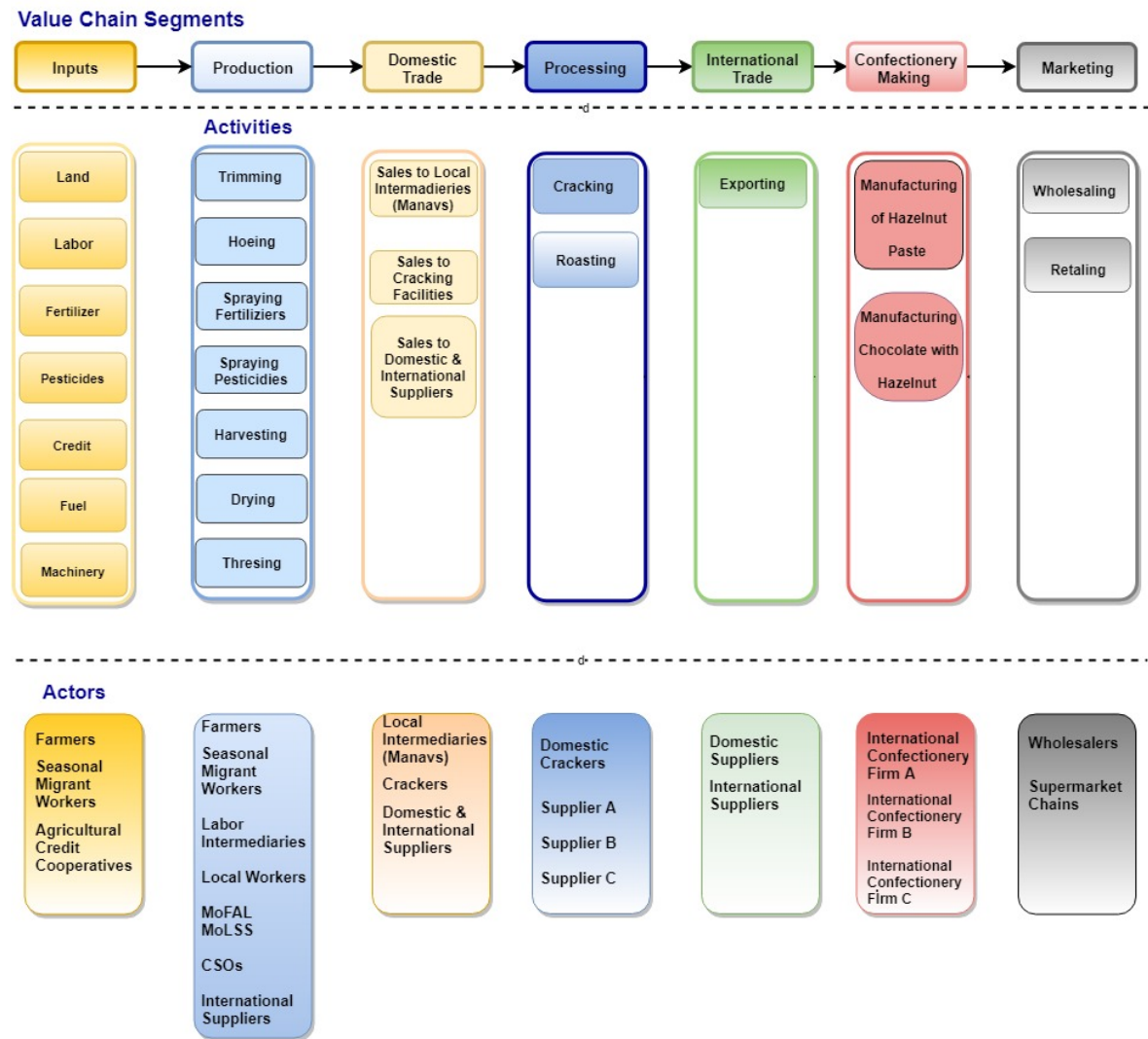
¹ Şahin and Meral 2012.

² This study uses the term “global value chain,” or “value chain,” rather than “supply chain.” This preference stems from that fact that the focus of this report is on the analysis of value.

³ See for instance, Fernandez-Stark, Bamber and Gereffi, 2011; Bamber and Gereffi, 2014; and Bair, 2009.

GVC, centered on production, domestic trade, processing, international trade, and confectionery making.

FIGURE 1: ACTIVITIES AND ACTORS IN THE GLOBAL HAZELNUT VALUE CHAIN⁴



As is the case in the global value chains of commodities like coffee, cocoa, fruits, and vegetables, the farmers' and workers' share in the hazelnut value chain in Turkey is small compared to the share of the total value commanded by international food companies and retailers.⁵ Illegal or unethical labor practices, such as the use of child labor, often occur in the lower rungs of these value chains.⁶

⁴ Source: Research team's construction following the example of the coffee GVC (Bamber and Gereffi, 2014).

⁵ Bamber and Gereffi, 2014; Cocoa Barometer, 2015.

⁶ See Bananalink, nd.; Chiputwa et al., 2015.

The most important actors in the hazelnut value chain—after the retailers, which are not part of this study—are the international confectionery firms that use hazelnuts in their products and purchase the largest share of Turkish hazelnuts through national and international supplier firms.

Hazelnuts are grown in Turkey's western and eastern Black Sea regions by 400,000 to 500,000 garden owners who are mostly family farmers. Another large group of actors are the seasonal agricultural workers who harvest the hazelnuts, who number tens, if not hundreds, of thousands including their families.⁷ Most of the harvesters come from provinces in southeast Turkey, where the level of development is low, and unemployment is high. They tend to travel in families and some of their children perform the arduous tasks involved in hazelnut harvesting working long hours to contribute to the family's meager income. Many worker families are indebted to the labor contractors who hire them.

Hazelnut farmers usually sell their produce to intermediary merchants called *manavs*, who buy hazelnuts according to the market price and the quality (*randıman*) of the produce. *Manavs* claim they add a one to two percent markup on the hazelnuts before they sell them to cracking facilities. *Manavs* also act as local moneylenders and store hazelnuts in their own warehouses until the time of sale, since most farmers do not have storage facilities. This form of consignment is called *safekeeping* (*emanet*).

Crackers are dispersed across several district and provincial centers of the Black Sea area. Some of these facilities are locally owned, while three large-scale suppliers active in Turkish hazelnut market operate others.

The Turkish State also plays a key role in the sector as it regulates cultivation, seeks to increase productivity, provides credit, and regulates the working and living conditions of harvest workers. Agricultural Credit Cooperatives (*Tarım Kredi Kooperatifleri*), the Ministry of Labor and Social Security (MoLSS) and the Ministry of Food, Agriculture, and Livestock (MoFAL)⁸, are important actors. Some years, the state also buys hazelnuts through the Turkish Grain Board (*Toprak Mahsulleri Ofisi*, TMO) to stabilize prices, usually in response to political demands.

2.2 Methodology

The researchers used mixed methods to conduct this study. The team conducted qualitative fieldwork in three provinces of the western and eastern Black Sea regions—Düzce, Sakarya and Ordu—in August and September 2017. The team interviewed farmers and seasonal migrant workers using the household income strategies approach to learn about their income and expenditures. Finally, the researchers talked to labor contractors, several civil society organizations, and representatives of companies.

In addition, the team used data from the Turkish Statistics Institute (TurkStat) and the International Trade Center (ITC) to conduct quantitative analyses and calculate the share of workers' wages in two

⁷ Various reports put the number of seasonal migrant workers at around 300,000 to 500,000, including their families. No specific figure is available on how many of these seasonal migrants work in the hazelnut harvest. See for instance, Hayata Destek Derneği (Support for Life Association, 2014), which gives a figure of 300,000, citing MoLSS statistics.

⁸ As a result of the transition to a presidential system, following elections held on June 24, 2018, some ministries were merged to create broader entities. MoLSS is now part of the Ministry of Labour, Social Services and Family and MoFAL has now joined the newly-created Ministry of Agriculture and Forestry.

confectionery products that contain hazelnuts and a living wage for harvest workers (for more details on the methodology and its limitations, see Annex I).

3. HAZELNUT PRODUCTION

3.1 Costs of Production

Land and labor are the most important inputs into the production of hazelnuts, followed by fertilizers, pesticides, machinery and tools, and fuel. Credit is also important because farmers rely on credit to buy tractors and other machinery and tools and pay the workers.

Numerous factors, such as geographical and climate conditions, affect the cost of production of hazelnuts. The production cost is highest in the eastern Black Sea region, where gardens are usually located on sloping hills, making year-round care and hazelnut harvesting costlier compared to the western Black Sea region.

The costs of hazelnut production include labor, the care of the land and the trees, fuel, fertilizers, pesticides, and the regular payments on loans for the purchase of machinery and implements.

Hazelnut cultivation is a labor-intensive activity, which makes labor the most significant input at almost every stage of the maintenance and production process. The cost of labor fluctuates from one year to the next. For instance, in 2017, the daily wages for seasonal migrant harvest workers were set at 60 TL by the provincial governorates along the Black Sea coast, up from the 55 to 56 TL the previous year. Prices of other inputs – fertilizers, pesticides, tools and implements -- have also been rising due to the depreciation of the TL against the USD. The location and terrain, the use of family, local, or migrant labor, and the tasks performed also cause variations in costs. Each farmer therefore faces a different combination of costs.

What are the costs of hazelnut production for a 1,000 square meter (1 dönüm or 0.1 hectare) hazelnut field with approximately 40 hazelnut trees?

Based on interviews with farmers, as well as with representatives of the Agricultural Credit Cooperatives in Düzce and Ordu, the researchers estimated the following labor and other input costs, based on 2017 prices and assuming production in a 1-hectare (10 dönüm) plot:

TABLE 1: ESTIMATED COSTS OF HAZELNUT CULTIVATION FOR FARMERS

For 1 hectare of land with 40 hazelnut trees (annual estimation)			
Estimated Cost Before the harvest			
Cycle	Activity	Input costs	Labor costs
October	Pruning Removing branches Cleaning branches	30 TL	150 TL
November	Fertilizers	70 TL	150 TL
April-August	Herbicides (commonly used although they harm the top soil)	15 TL	None
April-August	Scything the weeds	None	60 TL
April	Leaf fertilizers + Curative substance for pathogenic fungus	47 TL + 16 TL	30 TL (per day)
May	Repetition of the previous activity + tractor use	47 TL + 16 TL + 42 TL (per hour)	15 TL (per day)
April-May	Trimming the sprouts & young shoots	None	130 TL
June-July	Fertilizers + Pesticide	26 TL	30 TL (per day)
June-July	Scything the weeds	None	90 TL
June-July	Harrowing	None	50 TL
Additional Costs**	Fuel consumption for pruning + spraying pesticides	65 TL (Avg.)	None
Additional Costs**	Hoeing	50 TL	None
Harvest			
	Activity	Input costs	Labor costs
August to September	Cleaning the field + collecting nuts	None	60 TL x 6 (workers needed) = 360 TL
August to September	Threshing	30 TL (per hour for renting a thresher)	None
		409 TL	915 TL
TOTAL			1,324 TL

Almost all of farmers owned small tractors, called patpat⁹, and some also had regular tractors. When listing their expenses, some farmers factored in their loan repayments for these vehicles and other farm implements.

Harvesting constitutes the highest labor cost. After raking the field clear of any branches and rocks, workers shake the trees and collect the fallen nuts from the ground and put them into sacks. The cost of harvesting a dönüm is 360 TL using seasonal migrant workers who collect nuts from the ground. Typically, six person/days are required to collect the nuts.

⁹ Patpat is an improvised vehicle popular in Anatolian villages, which is used to carry goods and people. This vehicle is similar to a tractor-trailer. Patpats are used for transporting workers and hazelnut sacks.

Collecting the hazelnuts directly from the trees is not common practice in the western Black Sea region, but some hazelnut garden owners in the Eastern Black Sea region prefer this harvest method. To do this job, they usually hire local workers who have more experience, and whose daily wages are therefore higher.

All in all, it costs between 1,300 and 1,400 TL per dönüm of land (in a 1 hectare plot) to produce hazelnuts, depending on the activities undertaken. Some farmers actually skip many of the steps in order to reduce costs.

Apart from these general costs, farmers report additional expenses, for example, related to fuel consumption for tractors used in the field, ranging from 30 to 100 TL per dönüm, and for the (often unsafe) transportation of workers to and from the shelters where they live to the fields, raking fields before the harvest, or celebrating the end of the harvest with the workers.

Producers also listed non-wage expenditures related to harvest workers who stay in shelters that belong to the farmers, such as electricity and the renovation costs of the shelters every couple of years.

It should also be noted that the fees of the labor contractors are not included among the farmers' production costs, since harvest workers pay those fees out of their wages.

3.2 Profitability and Productivity in Hazelnut Farming: An Estimate

Is hazelnut farming a profitable business?

The research team examined the link between land size and productivity, mechanization, farmers' position within the market, price volatility and indebtedness, production costs, and sources of farmers' income. The conclusion is that hazelnut cultivation is not a reliable source of livelihood for many farmers, which is why they seek supplemental forms of income. Researchers also concluded that hazelnut producers find it difficult to pay living wages to the seasonal migrant workers they hire for the harvest.

Turkish public policy on hazelnut production and trade has not been stable in recent years. In 2006, the government tasked the Turkish Grain Board (TMO) with purchasing hazelnuts from farmers to stabilize markets, a task TMO performed until 2009. TMO purchases were then discontinued and the government introduced a system of "direct income support" to hazelnut garden owners, a subsidy program that is based on land size (alan bazlı gelir desteği), irrespective of production levels, paid through the MoFAL.

After the market experienced price fluctuations in 2015 and 2016, the government, anticipating farmer discontent related to low prices, announced in August 2017 that the TMO would purchase hazelnuts at 10 TL per kilogram (for hazelnuts with 50% randıman; lower quality hazelnuts would fetch a proportionally lower price). Several farmers interviewed by the research team stated that they needed 13 TL to 15 TL per kilogram to cover their costs and earn a profit.

Productivity levels in Turkey's hazelnut sector are low when compared to other hazelnut producing countries. From 2010 to 2014, the average productivity for the entire country was 108 kg/da. In the eastern and western Black Sea regions, the average annual hazelnut productivity was 76 kg/acre (da) and 111 kg/da respectively.¹⁰ By comparison, the United States produced 293 kg/da, Italy 183 kg/da, and Spain 125 kg/da.¹¹

Year-to-year fluctuations in productivity result from climate conditions, diseases, and other variables. For instance, there was a steep decline in production from 683,270 tons in 2014 to 420,000 tons in 2015 due to adverse weather conditions in the eastern Black Sea region.¹²

Broader trends contribute to changing patterns in hazelnut farming. Turkish hazelnuts have traditionally been cultivated by small holder farmers, who now face several challenges. In the past two decades, the overall area under hazelnut cultivation has risen consistently, from 555,000 hectares in 2001 to 705,445 hectares in 2016. Productivity per hectare, in contrast, has shrunk almost by half over the same period.¹³

There are no recent reliable figures on either the total number of holdings or trends of hazelnut holding sizes. As of 2006, when one of the last agricultural structure surveys was carried out by TurkStat, the average size of a hazelnut holding was around 1.4 hectares.¹⁴ According to the Ministry of Food, Agriculture and Livestock, there were around 500,000 hazelnut farmers in 2017,¹⁵ whereas a report by the Giresun Commodity Exchange refers to 400,000 hazelnut farmers in 2015.¹⁶ Based on these figures, the average size of hazelnut holdings can be estimated at 1.40 to 1.75 hectares. If these estimates are correct, the average size of hazelnut holdings has either remained unchanged for the past 15 years or has increased slightly.

A further problem preventing an estimation of holding size and how it has evolved over time is that only some of the cultivated land is covered by title deeds and registered in the Farmer Registration System (Çiftçi Kayıt Sistemi - ÇKS).¹⁷ Another portion of the land used for hazelnut cultivation is public land for which farmers do not hold title deeds.¹⁸ A farmer whose land is not registered cannot receive direct income support based on unregistered land, obtain Agricultural Credit Cooperative loans, or sell his/her produce to the Turkish Grain Board.

¹⁰ 10 decares (da) = 1 hectare (ha). 1 decare also equals 1 dönüm, or 1000 square meters.

¹¹ GTHB, 2014.

¹² Giresun Commodity Exchange, 2017.

¹³ Kooperatifçilik Genel Müdürlüğü, 2016, p. 7.

¹⁴ Doğanay, 2012. TURKSTAT carried out an agricultural holding structure survey in 2016 but its microdata had not released at the time of this writing.

¹⁵ Coşan, 2017.

¹⁶ Giresun Ticaret Borsası, 2016.

¹⁷ To give an example, in Düzce, only 73 percent of the agricultural land was under the Farmer Registration System as of 2013 (Gıda Tarım ve Hayvancılık Bakanlığı, nd). For Turkey overall, this share was 60 percent in the same year.

¹⁸ Furthermore, a detailed breakdown of Farmer Registration System (ÇKS) figures is not publicly available. The research team obtained ÇKS figures for the district of Ünye in Ordu province in an interview with the district agricultural director, which shows that the average holding size was about 1.7 hectares in 2015 and 2016. In Akçakoca, Düzce, the district agricultural director stated that there were around 7,500 hazelnut farmers with ÇKS registration, with a total of 15,000 hectares under hazelnut cultivation, meaning that the average holding would be 2 hectares in 2017. An official document indicates that the average agricultural holding size was 2.1 hectares in 2013 in Düzce. The same document shows that among the nearly 26,000 agricultural holdings in Düzce, only 1,045 were above 5 hectares; 152 people owned between 10 and 20 hectares, 8 people owned between 20 and 50 hectares and only 1 person owned more than 50 hectares of agricultural land (Gıda Tarım ve Hayvancılık Bakanlığı, nd).

In the purposive sample of 23 farmers interviewed in Düzce, Sakarya and Ordu, the holding size ranged from 0.2 ha to 10 ha (including land with title deeds, cultivated public lands, and rented gardens), with both the mode and the median values at 4 ha. The smallest holding sizes in the sample were in Ordu. It should be emphasized that these land holding statistics include both public land and rented land, which explains why they are larger than the national average, in addition to not being a representative sample.

One factor affecting holding size, and adding to the difficulties farmers face, is the subdivision and geographical dispersion of holdings, which results when properties are divided among heirs according to inheritance laws when they pass from one generation to the next.¹⁹

During its fieldwork, the research team identified two main categories of hazelnut farmers:

- Farmers living in the vicinity of their hazelnut gardens (in the village or nearest town center), who form the majority of hazelnut producers. Their holdings tend to be small, but hazelnut cultivation is the primary or a significant source of income for them.
- Farmers living in distant cities, such as Istanbul and Ankara. Fewer in number, these producers only visit their farms during the harvest season, and they consider hazelnut farming a supplementary source of income.

The majority of farmers interviewed for this study belonged to the first type. These farmers adopted various strategies to increase their land size and income. One strategy was for older sons (usually) to cultivate all their siblings' land—especially their sisters' land, in accord with a cultural norm that conflicts with inheritance law and denies married daughters a claim on the family property. Another strategy was to cultivate public plots of land—formerly forestland now under 2/B status that allows cultivation—adjacent to the land they own. Some farmers also rented additional gardens from owners who are not actively cultivating hazelnuts, usually for a share of the annual yield.

The choice of strategy was often determined by two factors: where the garden owners live and their age. Since the 1950s, the eastern Black Sea coast has experienced rural to urban migration due to the difficulty of growing food crops beyond subsistence level on the area's rough terrain. Outmigration, an aging population of active farmers, and the rising level of education of the young generation have contributed to a shortage of unpaid family labor, and thus to increasing wage labor needs, all along the Black Sea region, not only for harvesting but also for the care of the hazelnut trees and gardens.

One consequence of the increasing demand for paid labor is rising production costs. The researchers sought to estimate the level of farmers' incomes quantitatively by based on production levels, land size, production costs, and the hazelnut farming incomes reported by farmers.

Table 2 below shows the information provided by farmers. The first row is for a "representative" holding in Akçakoca, whose cost figures were provided by the District Agricultural Credit Cooperative for 1 da based on a hypothetical 1-hectare plot. The research team assigned annual yield and

¹⁹ To give an example, in 2013 in Düzce, agricultural holdings on average consisted of 7.8 separate plots of land and the average plot size was 0.48 hectares. For Turkey, agricultural holdings consisted on average of 9.7 separate plots in the same year (Gıda, Tarım ve Hayvancılık Bakanlığı, nd.).

productivity figures to this representative holding based on some assumptions. After eliminating outliers in the sample, the average production volume per 0.1 hectare (one dönüm) was close to 200 kg, which was taken as representative. Notice that this is much higher than the average annual productivity of hazelnut cultivation in the eastern and western Black Sea regions (around 111 kg/da and 76 kg/da, respectively). Average productivity includes farms on marginal lands with very low productivity whereas we wanted our representative farm with a reasonable yield and productivity level, assuming a fulltime farmer who undertakes the necessary activities to maintain yield.

The remaining rows display information gathered on actual holdings from farmers who participated in the study (eliminating outliers). On the basis of 2016 figures, these rows show the realized costs and expected hazelnut output. The revenue obtained from the output was calculated based on the average weighted price that prevailed in the two months after the opening of the hazelnut market following the 2017 harvest. In this calculation, the research team took into account the prices in the locations where the fieldwork was carried out.²⁰

A quick glance at Table 2 indicates that in Ordu (eastern Black Sea coastal region), average production costs per dönüm (1,000 square meters) are higher compared to Akçakoca and Düzce (western Black Sea coast), due mainly to geographical factors. Profitability depends on relatively high productivity, which in turn, requires both economies of scale and modern agricultural techniques (technologies).

Although the data compiled during the fieldwork is not representative, Table 2 shows that profitability of small holdings is very low, hence the income of these farmers from hazelnuts is also very low (even negative for the very small farms) and may sometimes be insufficient to cover the cost of hazelnut cultivation let alone provide a decent income for a farming family. This might be a factor causing some farmers to disregard good agriculture practices – with negative long-term implications – to keep production costs low. The analysis clearly suggests that, given current hazelnut cultivation practices and prices, it is beyond the farmers' ability to pay living wages to the workers.

²⁰ <https://www.findiktv.com/urunler/findik-fiyatlari/akcakoca-findik-fiyatlari> ; [https://www.findiktv.com/urunler/findik-fiyatlari](https://www.findiktv.com/urunler/findik-fiyatlari/ordu-findik-fiyatlari)

TABLE 2: EXPECTED YIELD, COSTS AND REVENUES, SELECTED FARMERS

DISTRICT	Cultivated Area (da)	Expected hazelnut yield (shelled) (kg)	Cost per da	Productivity= yield/area	Production/ Cost	Revenue/da	Profit/da (TL)	Total profit (TL)
AKÇAKOCA	10	2000	1462	200	0,137	1700	238	2.380
AKÇAKOCA	65	16000	970	246	0,254	2092	1122	72.950
AKÇAKOCA	40	6000	1045	150	0,144	1275	230	9.200
AKÇAKOCA	19	3500	598	184	0,308	1566	968	18.388
AKÇAKOCA	74	40000	912	541	0,593	4595	3683	272.512
AKÇAKOCA	20	3500	746	175	0,235	1488	742	14.830
AKÇAKOCA	80	15000	915	188	0,205	1594	679	54.300
AKÇAKOCA	10	1500	636	150	0,236	1275	639	6.390
AKÇAKOCA	14	3000	694	214	0,309	1821	1127	15.784
AKÇAKOCA	120	30000	417	250	0,600	2125	1708	204.960
AKÇAKOCA	12	500	377	42	0,111	354	-22	-268
AKÇAKOCA	14	2000	457	143	0,313	1214	757	10.602
ORDU	4	900	1209	225	0,186	1913	704	2.814
ORDU	2	250	1185	125	0,105	1063	-123	-245
ORDU	16	2500	1082	156	0,144	1328	246	3.938
SAKARYA	40	5000	982	125	0,127	1063	81	3.220

3.3 The Potential for Productivity Gains from Mechanization

Mechanization of hazelnut cultivation is directly correlated with hazelnut productivity. However, mechanization is also a function of land size, household composition, and farmers' lifecycle. Small holdings may prevent economies of scale associated with use of mechanical tools and machinery. Similarly, garden owners living in a city away from gardens and not actively engaged in hazelnut cultivation, may lack the motivation to mechanize.

Several farmers stated that owning and using machinery to perform the various tasks in the cultivation cycle contributes to productivity increases, reduced labor costs, and boosting profitability. However, many farmers own small holdings, some are older or not healthy enough to do the work themselves, and yet others live and work elsewhere, conditions that do not provide the incentives needed to invest in tending their farms.

There are other reasons as well. Many families, even those who live near their farms, cannot afford to make the required investments. The uncertainties associated with the market and particularly hazelnut prices, discourage farmers from investing in mechanization further jeopardizing their livelihood. In parts of the Black Sea region, where the terrain is too steep, mechanization is not an option. For owners of gardens located on steep slopes, manual labor remains the only viable option.

4. THE COMPOSITION OF VALUE IN THE HAZELNUT VALUE CHAIN: WHO GETS WHAT?

This report seeks to answer the question above in the context of the Turkish hazelnut sector. The research team traced the value added in the chain, from the farmers and local merchants along the Black Sea region, to the international suppliers and international food firms that make confectionery products using hazelnuts, and finally to retailers in Europe.

To do this, the team selected two confectionery products with very high hazelnut content: chocolate bars with hazelnuts (with hazelnut content of 20 percent) and hazelnut cocoa spread (with hazelnut content of 13 percent). The researchers based their calculations on a hypothetical hazelnut grower who owns 1-3 hectares of land. The value-added calculated for the various segments of the hazelnut value chain takes into account four stages:

- Agricultural production: determination of costs and yield in hazelnut cultivation
- Trade: international trade in hazelnut kernels
- Manufacturing: manufacturing of generic confectionery products containing hazelnuts
- Retailing: supply of generic confectionery products to the retail market

4.1 Agricultural Production

The research team calculated average costs and average hazelnut yield per decare based on fieldwork findings and used these figures to calculate total costs and total revenue. Revenue was calculated based on the average of daily hazelnut prices published by local commodity exchanges during the 2017 harvest. The team constructed a representative farmer (see the first row of Table 2, statistics reported in red) and then calculated this farmer's total revenue and costs in terms of 1 kg of kernels converted at the rate of 1.9.²¹ The price of hazelnut kernels/kg and production cost/kg that was computed in this manner can be seen in the first row of Table 2.

Tables 3 and 4 display the composition of value-added in a generic chocolate bar with hazelnuts and a generic chocolate hazelnut spread, respectively. The value chains for these products are shown in Figures 2 and 3, respectively. In constructing the tables, the research team adopted the approach used by Cocoa Barometer, detailed on its website.²² In addition to the Cocoa Barometer database, the team utilized fieldwork findings, daily prices from local commodity exchanges, trade statistics from the ITC database.²³

In Table 3, "per kg" and "per ton" columns include "profit sub-columns." It is well known that "value added" and "profit" are two different concepts: value added contains profit plus other components, such as wages. Therefore, comparing and/or trying to find a linear relationship between these two notions is not likely to yield meaningful results.

²¹ 1.9 kg shelled nuts = 1 kg kernels. The research team used this conversion because international trade is largely carried out in kernels. The team used both kernel (code no: 080222) and shelled hazelnut (code no: 080221) trade prices and volumes in the ITC database.

²² http://www.cocoabarometer.org/Resources_and_Data.html

²³ <https://www.trademap.org/Index.aspx>

While value added can be measured as “a couple of USD cents” or “thousands of USD” per kg, the associated profit rate can still theoretically vary between 0 and 100. For this study we collected detailed information on agricultural production and the important processes carried out during domestic trade.

Because the research team did not have reliable data or details on the international transactions, and it could not determine the internal distribution of value-added based on production factors for this segment of the international value chain, the team relied on figures on profit shares of international actors in the Cocoa Barometer 2015 report, assuming that the profit rates across commodities would be more or less the same.

For the calculations in Table 3, which break down the value of chocolate bars with hazelnuts, two adjustments (conversions) were required. First, as mentioned above, the team converted hazelnut-in-shell prices to cracked hazelnut (kernel) prices, assuming a conversion rate of 1.9 (meaning that 1.9 kg shelled hazelnuts = 1 kg of cracked hazelnuts). Second, for each of the two composite outputs (hazelnut chocolate bars and hazelnut cocoa spread), the team decomposed the end products to calculate the prices of hazelnuts into the sales prices of each.

Panel A of Table 3 shows the first stage of the hazelnut value chain: farming. According the figures, the converted total cost to farmers of one kg “hazelnuts-in-shell (HiS)” equals \$3.66 and the sales price equals \$4.50. The value added produced through farming is \$850 per ton—a very low figure associated with the depressed sales price for the 2017 harvest season (8.5 TL) and high costs (costs to farmers increasing in a linearly every year).

Panel B focuses on internal activities and trade (including terminal handling and international trade). Their total share of value added within the “chain” amounts to 11.8 percent. The second column includes two different, but closely related, concepts: value-added and profit rate. Value-added is calculated as the difference between output (sales price \times unit commodities) and input (payments for purchased goods and services). The profit rate is calculated in percent form as profit over total value-added (profit / value-added). The share of inland transport is quite high, because gasoline is very expensive in Turkey.

Panel C refers to two major segments of the value chain: manufacturing and retailing. The information contained in the Cocoa Barometer 2015 Report provided estimates of the profit rate and value-added shares of the main actors in these two segments, assuming that their production and financial structures have not changed significantly in the two years. Some of the confectionery firms and international suppliers involved in the cocoa value chain also operate in the hazelnut value chain. According to the team’s calculations, the value-added of these two sub-components in the value chain is 76.2 percent; retailers get 42.5 percent of this value-added, while manufacturers take 31.5 percent.

TABLE 3: BREAKDOWN OF VALUE IN CHOCOLATE WITH HAZELNUTS

PANEL A : FARMING		VALUE ADDED SHARE:						12,10%
Hazelnut (FOB Prices)		USD 8912 per ton						
Wages of Seasonal Agricultural Worker	\$0,39	VALUE ADDED SHARE: 1,05%						
	per kg		per kg		per ton		Final Sale	
	Sells	Cost	Value Added	Profit (%)	Value Added	Profit (%)		
Farmers Income (per kg)	\$ 4,50	\$ 3,66	\$ 0,85	23,1	\$ 845	23,1	12,1%	
Crackers (per kg)	\$ 5,18	\$ 4,50	\$ 0,68	13,5	\$ 675	13,5	1,8%	
Intermediaries (per kg)	\$ 5,82	\$ 5,18	\$ 0,65	5,2	\$ 647	5,2	1,7%	
Intermediaries Including Inland Transport	\$ 7,57	\$ 5,82	\$ 1,75	?	\$ 1.747		4,7%	
Export Companies	\$ 8,60	\$ 7,57	\$ 1,03	?	\$ 1.032		2,8%	
International Transport (CIF to FOB Prices)	\$ 8,90	\$ 8,60	\$ 0,30	?	\$ 300		0,8%	
Share of Hazelnut in Unit Chocolate (20%) :	FOB Price of Hazelnut: 8.9 USD/kg FOB Price of Bulk Chocolate: 1.78 USD/kg							
Terminal Handling Costs port of arrival	\$ 1,91	\$ 1,78	\$ 0,13	?	\$ 128		1,7%	
International Traders	\$ 1,94	\$ 1,91	\$ 0,03	15,2	\$ 29	15,2	0,4%	
Manufacturer	\$ 4,28	\$ 1,94	\$ 2,34	13,5	\$ 2.344	14	31,5%	
Retail & Taxes	\$ 7,45	\$ 4,28	\$ 3,17	5,9	\$ 3.167	5,9	42,5%	
PANEL B: LOCAL PROCESSING AND TRADE		VALUE ADDED SHARE: 11,80%						
Hazelnut (FOB Prices)		USD 8912 per ton						
Wages of Seasonal Agricultural Worker	\$0,39	VALUE ADDED SHARE: 1,05%						
	per kg		per kg		per ton		Final Sale	
	Sells	Buys	Value Added	Profit (%)	Value Added	Profit (%)		
Farmers Income (per kg)	\$ 4,50	\$ 3,66	\$ 0,85	23,1	\$ 845	23,1	12,1%	
Crackers (per kg)	\$ 5,18	\$ 4,50	\$ 0,68	13,5	\$ 675	13,5	1,8%	
Intermediaries (per kg)	\$ 5,82	\$ 5,18	\$ 0,65	5,2	\$ 647	5,2	1,7%	
Intermediaries Including Inland Transport	\$ 7,57	\$ 5,82	\$ 1,75	?	\$ 1.747		4,7%	
Export Companies	\$ 8,60	\$ 7,57	\$ 1,03	?	\$ 1.032		2,8%	
International Transport (CIF to FOB Prices)	\$ 8,90	\$ 8,60	\$ 0,30	?	\$ 300		0,8%	
Share of Hazelnut in Unit Chocolate (20%) :	FOB Price of Hazelnut: 8.9 USD/kg FOB Price of Bulk Chocolate: 1.78 USD/kg							
Terminal Handling Costs port of arrival	\$ 1,91	\$ 1,78	\$ 0,13	?	\$ 128		1,7%	
International Traders	\$ 1,94	\$ 1,91	\$ 0,03	15,2	\$ 29	15,2	0,4%	
Manufacturer	\$ 4,28	\$ 1,94	\$ 2,34	13,5	\$ 2.344	14	31,5%	
Retail & Taxes	\$ 7,45	\$ 4,28	\$ 3,17	5,9	\$ 3.167	5,868545	42,5%	
PANEL C: MANUFACTURING AND RETAILING		VALUE ADDED SHARE: 76,20%						
Hazelnut (FOB Prices)		USD 8912 per ton						
Wages of Seasonal Agricultural Worker	\$0,39	VALUE ADDED SHARE: 1,05%						
	per kg		per kg		per ton		Final Sale	
	Sells	Cost	Value Added	Profit (%)	Value Added	Profit (%)		
Farmers Income (per kg)	\$ 4,50	\$ 3,66	\$ 0,85	23,1	\$ 845	23,1	12,1%	
Crackers (per kg)	\$ 5,18	\$ 4,50	\$ 0,68	13,5	\$ 675	13,5	1,8%	
Intermediaries (per kg)	\$ 5,82	\$ 5,18	\$ 0,65	5,2	\$ 647	5,2	1,7%	
Intermediaries Including Inland Transport	\$ 7,57	\$ 5,82	\$ 1,75	?	\$ 1.747		4,7%	
Export Companies	\$ 8,60	\$ 7,57	\$ 1,03	?	\$ 1.032		2,8%	
International Transport (CIF to FOB Prices)	\$ 8,90	\$ 8,60	\$ 0,30	?	\$ 300		0,8%	
Share of Hazelnut in Unit Chocolate (20%) :	FOB Price of Hazelnut: 8.9 USD/kg FOB Price of Bulk Chocolate: 1.78 USD/kg							
Terminal Handling Costs port of arrival	\$ 1,91	\$ 1,78	\$ 0,13	?	\$ 128		1,7%	
International Traders	\$ 1,94	\$ 1,91	\$ 0,03	15,2	\$ 29	15,2	0,4%	
Manufacturer	\$ 4,28	\$ 1,94	\$ 2,34	13,5	\$ 2.344	14	31,5%	
Retail & Taxes	\$ 7,45	\$ 4,28	\$ 3,17	5,9	\$ 3.167	5,9	42,5%	

Source: Research team's calculations from fieldwork data, ITC data, supermarket web pages. Inspired from the Cocoa Barometer 2015.

Table 4 displays parallel calculations for cocoa hazelnut spread. The results differ slightly from the calculations for hazelnut chocolate bars. The farmers' share of value added is higher in the cocoa chocolate spread value chain than in the hazelnut chocolate value chain. The lower share of value added attributed to the local processor explains this difference, as the share of hazelnuts is higher in hazelnut chocolate bar (20 percent) than in cocoa hazelnut spread (13 percent). In the cocoa hazelnut spread value chain, the share of value added of "wage earners", "farmers", "local processors and traders", "manufacturers" and "retailers" are 1.1 percent, 12.6 percent, 11.5 percent, 30.3 percent and 42.5 percent respectively. Seasonal wage earners' share in the value chain is tiny in comparison to other

actors' shares. The farmers' share in the total value added is also quite low. This unequal distribution of profits is unlikely to change in the foreseeable future, unless deliberate action is taken to alter it.

TABLE 4: BREAKDOWN OF VALUE IN COCOA HAZELNUT SPREAD

PANEL A : FARMING			VALUE ADDED SHARE:				11,55%
Hazelnut (FOB Prices)			USD 8912 per ton				
Wages of Seasonal Agricultural Worker	\$0,39		VALUE ADDED SHARE:				1,10%
	per kg		per kg		per ton		Final Sale
	Sells	Cost	Added	Profit (%)	Added	Profit (%)	
Farmers Income (per kg)	\$ 4,50	\$ 3,66	\$ 0,85	23,1	\$ 845	23,1	12,6%
Crackers (per kg)	\$ 5,18	\$ 4,50	\$ 0,68	13,5	\$ 675	13,5	1,9%
Intermediars (per kg)	\$ 5,82	\$ 5,18	\$ 0,65	5,2	\$ 647		1,8%
Intermediars Including Inland Transport	\$ 7,57	\$ 5,82	\$ 1,75	?	\$ 1.747		4,9%
Export Companies	\$ 8,60	\$ 7,57	\$ 1,03	?	\$ 1.032		2,9%
International Transport (CIF to FOB Prices)	\$ 8,90	\$ 8,60	\$ 0,30	?	\$ 300		0,8%
Share of Hazelnut in Unit Spread (13%) :	FOB Price of Hazelnut: 8.9 USD/kg FOB Price of Bulk Chocolate: 1.16 USD/kg						
Terminal Handling Costs port of arrival	\$ 1,24	\$ 1,16	\$ 0,08	?	\$ 83		1,8%
International Traders	\$ 1,26	\$ 1,24	\$ 0,02	15,2	\$ 19	15,2	0,4%
Manufacturer	\$ 2,66	\$ 1,26	\$ 1,40	13,5	\$ 1.400	13,5	30,3%
Retail & Taxes	\$ 4,63	\$ 2,66	\$ 1,97	5,9	\$ 1.968	5,9	42,5%
PANEL B: LOCAL PROCESSING AND TRADE			VALUE ADDED SHARE:				14,56%
Hazelnut (FOB Prices)			USD 8912 per ton				
Wages of Seasonal Agricultural Worker	\$0,39		VALUE ADDED SHARE:				1,10%
	per kg		per kg		per ton		Final Sale
	Sells	Cost	Value Added	Profit (%)	Value Added	Profit (%)	
Farmers Income (per kg)	\$ 4,50	\$ 3,66	\$ 0,85	23,1	\$ 845	23,1	12,6%
Crackers (per kg)	\$ 5,18	\$ 4,50	\$ 0,68	13,5	\$ 675	13,5	1,9%
Intermediars (per kg)	\$ 5,82	\$ 5,18	\$ 0,65	5,2	\$ 647		1,8%
Intermediars Including Inland Transport	\$ 7,57	\$ 5,82	\$ 1,75	?	\$ 1.747		4,9%
Export Companies	\$ 8,60	\$ 7,57	\$ 1,03	?	\$ 1.032		2,9%
International Transport (CIF to FOB Prices)	\$ 8,90	\$ 8,60	\$ 0,30	?	\$ 300		0,8%
Share of Hazelnut in Unit Spread (13%) :	FOB Price of Hazelnut: 8.9 USD/kg FOB Price of Bulk Chocolate: 1.16 USD/kg						
Terminal Handling Costs port of arrival	\$ 1,24	\$ 1,16	\$ 0,08	?	\$ 83		1,8%
International Traders	\$ 1,26	\$ 1,24	\$ 0,02	15,2	\$ 19	15,2	0,4%
Manufacturer	\$ 2,66	\$ 1,26	\$ 1,40	13,5	\$ 1.400	13,5	30,3%
Retail & Taxes	\$ 4,63	\$ 2,66	\$ 1,97	5,9	\$ 1.968	5,9	42,5%
PANEL C: MANUFACTURING AND RETAILING			VALUE ADDED SHARE:				72,80%
Hazelnut (FOB Prices)			USD 8912 per ton				
Wages of Seasonal Agricultural Worker	\$0,39		VALUE ADDED SHARE:				1,10%
	per kg		per kg		per ton		Final Sale
	Sells	Cost	Value Added	Profit (%)	Value Added	Profit (%)	
Farmers Income (per kg)	\$ 4,50	\$ 3,66	\$ 0,85	23,1	\$ 845	23,1	12,6%
Crackers (per kg)	\$ 5,18	\$ 4,50	\$ 0,68	13,5	\$ 675	13,5	1,9%
Intermediars (per kg)	\$ 5,82	\$ 5,18	\$ 0,65	5,2	\$ 647		1,8%
Intermediars Including Inland Transport	\$ 7,57	\$ 5,82	\$ 1,75	?	\$ 1.747		4,9%
Export Companies	\$ 8,60	\$ 7,57	\$ 1,03	?	\$ 1.032		2,9%
International Transport (CIF to FOB Prices)	\$ 8,90	\$ 8,60	\$ 0,30	?	\$ 300		0,8%
Share of Hazelnut in Unit Spread (13%) :	FOB Price of Hazelnut: 8.9 USD/kg FOB Price of Bulk Chocolate: 1.16 USD/kg						
Terminal Handling Costs port of arrival	\$ 1,24	\$ 1,16	\$ 0,08	?	\$ 83		1,8%
International Traders	\$ 1,26	\$ 1,24	\$ 0,02	15,2	\$ 19	15,2	0,4%
Manufacturer	\$ 2,66	\$ 1,26	\$ 1,40	13,5	\$ 1.400	13,5	30,3%
Retail & Taxes	\$ 4,63	\$ 2,66	\$ 1,97	5,9	\$ 1.968	5,9	42,5%

Source: Research team's calculations from fieldwork data, ITC data, supermarket web pages

4.2 Trade

The stages in the value chain between farmers' sales price and CIF (Cost, Insurance, and Freight) prices are shown in Figures 2 for chocolate bars with hazelnuts and Figure 3 for hazelnut cocoa spread, respectively. From the ITC database, the team used Turkey's export price to Germany (unit price) for CIF prices, and Germany's import price from Turkey (unit price) for FOB (Free on Board) prices.²⁴ We thus have two observed prices but no empirical observation on the prices and costs in between these two stages. The fieldwork findings from interviews with local merchants (manavs), crackers, and suppliers did not yield objective information on the composition of their operating costs, labor costs, profits, and the value-added they created. However, fieldwork observations suggest that these actors operate on low profit rates. Calculations for this stage of the value chain are therefore based on assumptions informed by the fieldwork observations.

4.3 The Making of Chocolate with Hazelnuts

The research team collected information about several brands of chocolate bars with hazelnuts. One kilo of an average such product contains 20 percent hazelnut and 80 percent cocoa. The total production cost of the chocolate bars with hazelnuts consists of three main components:

- Production cost of chocolate from cocoa
- Cost of other ingredients
- Cost of hazelnuts

Because researchers were unable to break down the costs of chocolate production, they used the price of bulk chocolate as a proxy for the chocolate production cost to the manufacturer, assuming that chocolate production cost is equal to the world price of the chocolate manufactured for industrial use.

For the cost of other ingredients and the cost of hazelnuts, the team used the Germany FOB price of 2-kg bulk chocolate (industrial chocolate) in the ITC database as the unit input cost for the chocolate bar with hazelnuts. Accordingly, the total input cost of 1 kg of this product is computed as USD 4.34 in terms of FOB prices: 80 percent of this amount is attributable to chocolate at a unit cost of USD 3.2/kg and 20 percent to hazelnut at unit cost of USD 8.9/kg.

The team also collected information on retail prices for chocolate with hazelnut products of various qualities from supermarket websites, using the retail price of an average quality chocolate bar with 20 percent as a starting point. The researchers used public information on Cocoa Barometer's web site to determine the stages of production for such products. Accordingly, the team assumed that the products went through two more stages after FOB prices and used the same ratio of value-added computed for stages by the Cocoa Barometer. Finally, the team calculated the value-added of the manufacturer as a residue, based on retail price data. All these calculations were made based on a kilo of hazelnuts that goes into the making of a chocolate bar with 20 percent hazelnuts.

In Tables 3 and 4, in addition to value-added, the research team also computed figures on profitability for each stage. For the activities in Turkey, profit rates were calculated based on fieldwork data. For

²⁴ In a parallel fashion, for the hazelnut cocoa spread, the research team used Italian/Turkish prices in the ITC database.

activities for which the team was unable to obtain data, no profit margin was added. For activities in the country of manufacture, the research team used the computations in the Cocoa Barometer. The value-added estimates for each stage were then converted into value-added per ton and equalized. Next, the share of value-added for each particular stage in the total sales price was calculated by dividing value-added for each stage into the total value-added expressed in terms of the total retail price.

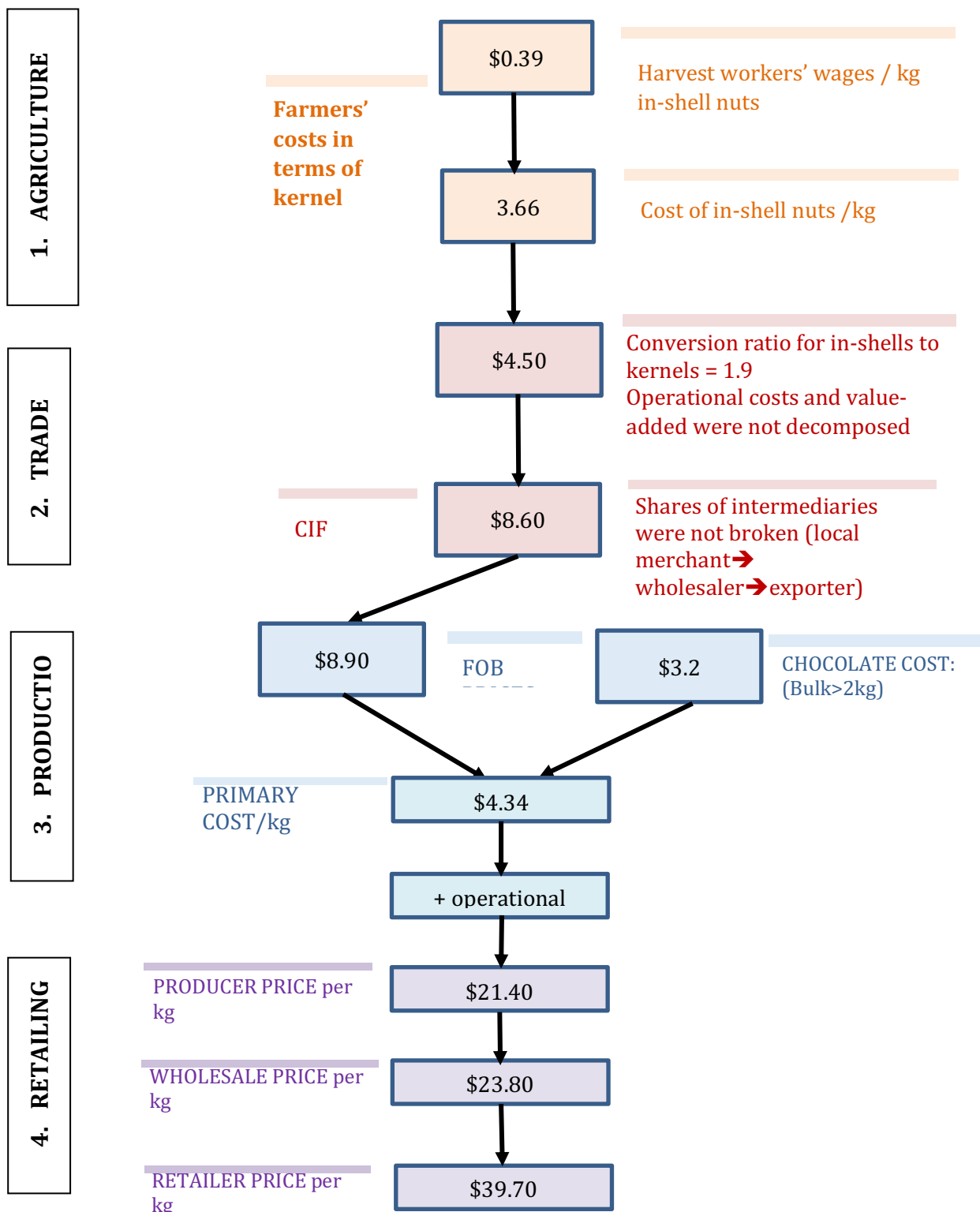
Thus, the farmers' share of the value-added was 12.1 percent of the total price, whereas the share of the value-added of confectionery manufacturers and sales intermediaries was 31.5 percent and 42.5 percent, respectively. Other actors account for 13.9 percent of the value-added. Finally, the wages of seasonal agricultural workers, included in the production cost of farmers, only amounted to 1.05 percent, as shown in Figure 2.

4.4 The Making of Hazelnut Cocoa Spread

Similar calculations were made to break down the value of 1 kg of hazelnut cocoa spread. Up to FOB prices, the calculations for the activities in Turkey are similar for the two confectionery products (see Table 4). The ratio of hazelnuts in the spread is 13 percent. In addition to hazelnuts, this product contains sugar, vegetable oil, whey powder, cocoa powder, and milk powder, among other ingredients. Price data for these ingredients at the level of HS6 code (Harmonized Commodity Description and Coding Systems 6)²⁵ were collected from the ITC database. Costs were calculated according to their percentage in the product. Beyond that stage, calculations were made under the same assumptions as for chocolate bars with hazelnuts. Accordingly, the farmers' share of value-added in hazelnut cocoa spread came to 12.6 percent, whereas the shares of the confectionery manufacturer and the retailer were 30.3 percent and 42.5 percent, respectively. The other actors' share in the total value-added was 14.6 percent. Finally, the share of seasonal workers' wages, included in the production costs of farmers, was 1.10 percent (see Figure 5).

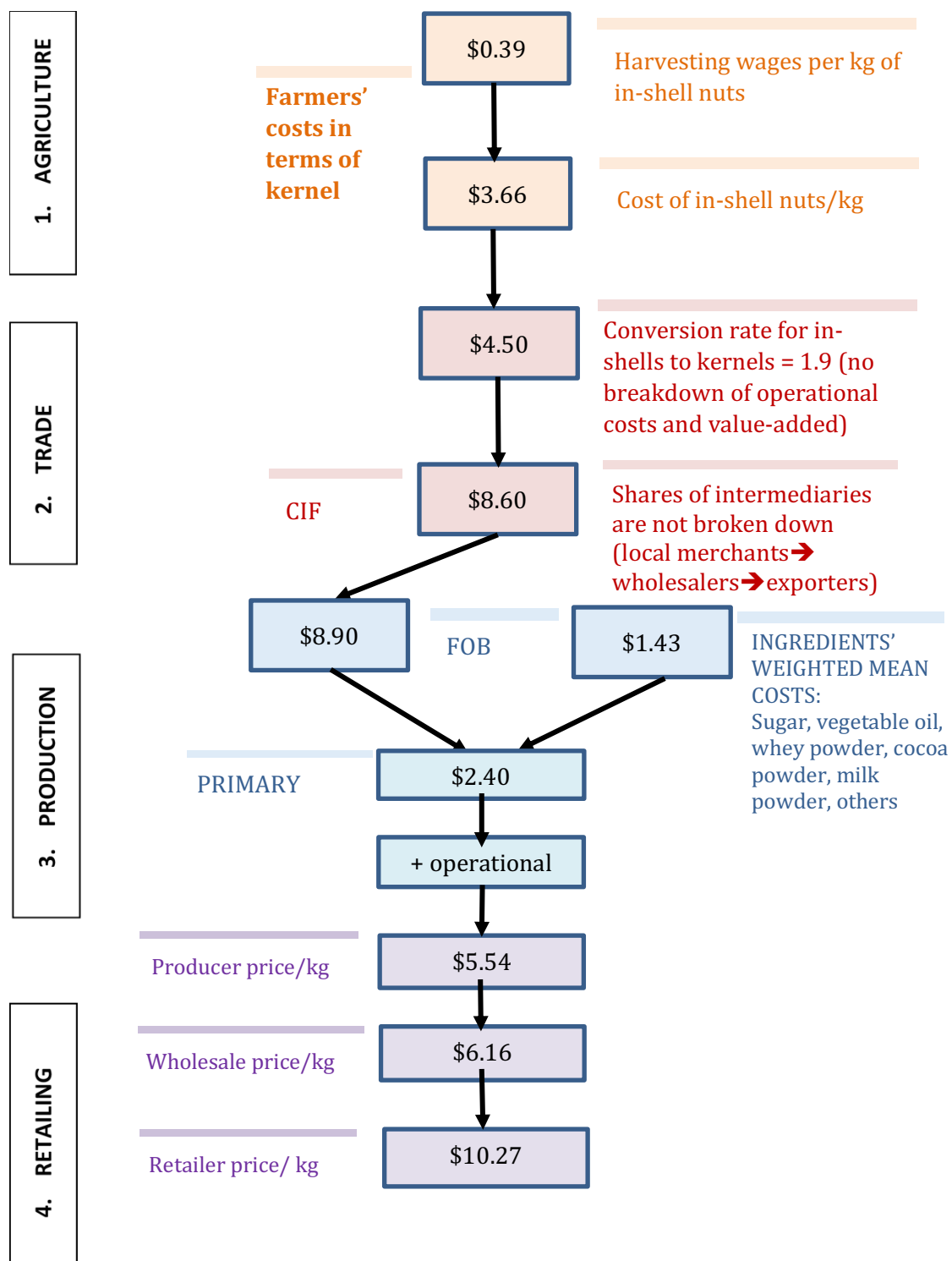
²⁵ The UN defines the Harmonized Commodity Description and Coding Systems as follows: "Harmonized Commodity Description and Coding System (HS) is an international nomenclature for the classification of products. It allows participating countries to classify traded goods on a common basis for customs purposes. At the international level, the Harmonized System (HS) for classifying goods is a six-digit code system". The system was adopted in 1988, and thereafter recognized by most of the countries worldwide.

FIGURE 2: THE VALUE CHAIN FOR CHOCOLATE WITH HAZELNUTS



Source: Research team's calculations from fieldwork data, ITC data and Cocoa Barometer data

FIGURE 3: THE VALUE CHAIN FOR HAZELNUT COCOA SPREAD

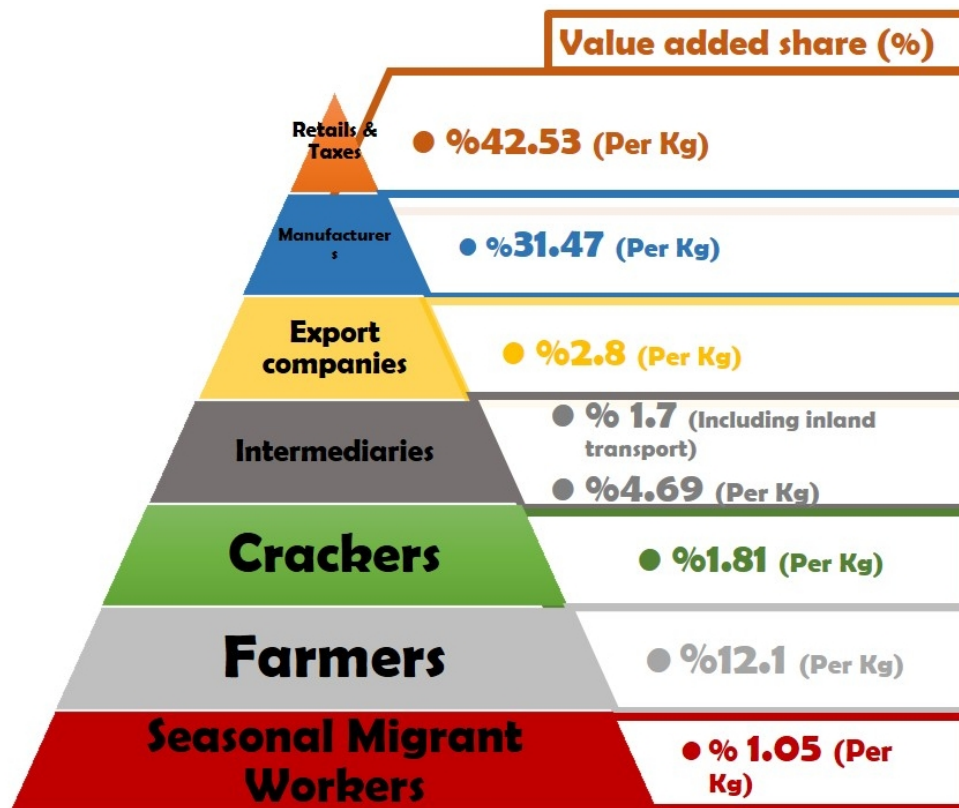


Source: Research team's calculations from fieldwork data, ITC data and Cocoa Barometer data

For each of these confectionery products, the estimates by the research team indicate that the value added is clearly concentrated in the upper segments of the global hazelnut chain, at the level of international suppliers and confectionery firms. Their share in the total value-added was 12.1 percent and 12.6 percent, respectively. The share of the seasonal farm workers who harvest hazelnuts was 1.05 percent and 1.1 percent, respectively. Figure 4 shows the hierarchical nature of the composition of value in the hazelnut GVC.

Can farmers pay living wages to seasonal agricultural workers with their current share of the income from hazelnuts? This study suggests that without an increase in the sales price of hazelnuts, hazelnut garden owners could not pay higher wages to workers without seeing their already low share of the value-added decline even further.

FIGURE 4: THE SHARES OF VALUE-ADDED IN THE HAZELNUT GVC



Source: Constructed by the research team on the basis of GVC analysis in Bamber and Gereffi (2014).

5. FARMERS AND SEASONAL MIGRANT WORKERS: INCOME, EXPENSES, AND INDEBTEDNESS

5.1 Farmers' Income and Expenses

For farmers, the domestic and international market for hazelnuts is full of uncertainties, which put their incomes at risk and may discourage them from investing in productivity-enhancing investments. The sales price of hazelnuts has been volatile in the past decade, driving many farmers into indebtedness to banks and intermediaries (manavs).

Indebtedness became an issue in 2014 and 2015 when the price of hazelnuts peaked mid-season due to low production in the eastern Black Sea region and high international demand. Some farmers took out bank loans or loans from Agricultural Credit Cooperatives to buy tractors and other equipment. The next year, the price was much lower making it difficult for many to make repayments.

Generally, farmers with insufficient means borrow money throughout the year from the local wholesaler/intermediary (manav) to cover operating costs and pay harvest workers, with the promise of repayment after the harvest. Once the farmer sells his produce to the manav, accounts are settled and repayment is made.

The reliance on manavs as moneylenders stems partly from the fact that only farmers with registered land are entitled to receive cheap credit from the state-owned Agriculture Bank (Ziraat Bankası) or to buy machinery and tools on credit from the Agricultural Credit Cooperatives (Tarım Kredi Kooperatifleri). Debt repayments to the cooperative are on an annual basis following the harvest, which is suitable for hazelnut growers.

Most smallholders do not have warehouses for storing their hazelnuts and they also use the manavs' storage facilities for safekeeping (emanet). Whenever they need cash, farmers might ask the manav to buy part or all of the hazelnuts in storage. Often, by the time this transaction takes place, the sales price of the hazelnuts is lower than it was at the time of storing it, resulting in a profit for the manav. In the 2010s, efforts were made to establish licensed warehouses where farmers could store their hazelnut produce before sale, but the system did not take hold.

5.1.1 Farmers' Income

The research team collected information on all sources of income in farmer households, including wages, rents, profits, government transfers and income from subsistence activities, as well as expenditures. Among 23 farmers the research team interviewed, six were retired, and so were their spouses. Thirteen had wage work, and four reported that their spouses also worked. Three farmers had working adult children living with them.

Pensions constitute one form of government transfer that benefits farmers. Garden owners who have ÇKS registration are entitled to direct income support, based on land size, from the government. In 2017, this subsidy was 170 TL per dönüm (1000 m²).²⁶ A few farmers ran small enterprises or drew rent income from stores.

²⁶ It should not be assumed that all farmers get 170 TL per dönüm since many farmers cultivate public land or are sharecroppers on other people's land, a point that was emphasized earlier in the report. Perhaps landlords who live in cities

TABLE 5: SUMMARY OF SOURCES OF INCOME AND HOUSEHOLD EXPENSES FOR FARMERS

ID	Registered Land with title (Decares)	Unregistered Public Land in Use (Decares)	Land in Use for Sharecropping (Decares)	Age	Household Size	Expected Production in 2017 (KG)	Expected Income from Hazelnuts in 2017 (10 TL/KG)	Retired (self)	Retired (Spouse)	Profits	Rent Income	Social Security	Subsistence Production	Wages (Self)	Wages (Spouse)	Wages (Adult Children)	Personal Debt	Bank Loans	Rent Expenditures	Schooling Expenditures
1	12	x	x	60	2	500	5,000	✓	✓	x	x	Retired	✓	x	x	x	x	x	✓	x
2	75	x	x	50	5	11250	112,500	✓	x	x	x	Retired	x	✓	✓	x	x	x	✓	x
3	60	x	60	50	4	30000	270,000	✓	x	x	✓	Retired	✓	✓	x	x	x	✓	x	x
4	10	x	30	40	3	5200	32,500	x	x	x	x	Green Card	x	✓	x	x	x	✓	✓	x
5	30	20	x	52	5	5500	52,250	x	x	x	x	Yes	✓	✓	x	x	✓	x	✓	x
6	11	11	x	61	4	4000	40,000	x	x	x	✓	Dependent on adult child's social security	✓	✓	x	x	x	✓	✓	✓
7	40	x	x	38	4	5000	50,000	x	x	x	x	Yes	✓	✓	✓	x	x	✓	x	x
8	4	x	x	48	4	800	8,000	x	x	x	x	Yes	✓	✓	x	x	x	x	✓	✓
9	10	3	x	34	4	2500	25,000	x	x	x	✓	Yes	x	✓	x	x	✓	x	x	x
10	2	x	x	25	4	150	1,500	x	x	✓	x	Yes	x	x	x	x	✓	x	✓	x
11	14	x	x	x	5	2000	20,000	✓	x	x	x	Retired	✓	x	x	x	x	x	x	✓
12	40	x	x	x	x	x	x	x	x	x	x	Yes	x	✓	✓	x	x	x	x	x
13	100	x	900	38	3	100000	1,000,000	x	x	x	x	Yes	x	x	x	x	x	x	✓	✓
14	57	x	x	50	4	10000	100,000	✓	x	x	x	Retired	x	✓	x	x	x	x	x	x
15	40	x	x	58	4	x	x	x	✓	x	x	Yes	x	✓	x	x	x	x	x	✓
16	65	x	x	55	6	16000	160,000	✓	x	x	x	None	✓	x	x	x	x	x	x	x
17	80	x	x	44	6	15000	150,000	✓	✓	x	x	Yes	✓	x	x	x	✓	x	x	✓
18	80	x	x	x	7	15000	150,000	✓	✓	✓	x	Yes	x	x	x	x	x	x	x	✓
19	20	x	x	51	2	3500	35,000	✓	x	x	x	None	✓	✓	✓	x	x	✓	x	x
20	10	x	x	67	2	1500	15,000	✓	x	x	x	Retired	x	x	x	x	x	✓	x	x
21	40	x	x	44	6	4000	40,000	x	✓	x	✓	Yes	x	✓	x	x	x	x	x	x
22	14	x	x	58	3	3000	30,000	x	✓	x	x	Dependent on adult child's social security	✓	x	x	x	✓	✓	x	x
23	20	x	x	50	4	1750	17,500	✓	x	✓	x	None	x	x	x	x	x	x	x	x

benefit from direct income supports to a disproportionate degree since they get this transfer regardless of whether they themselves grow hazelnuts and or farming is a significant form of livelihood activity for them.

5.1.2 Farmers' Household Expenses

Debt repayments and children's school expenses were the most significant expenditures of farmers who participated in the survey. Sixteen people in the sample owned a home, but eight other farmers paid rent for an apartment or a house in the village. Most farmers had some form of social security coverage, enabling them to almost free access to health care services (after a co-payment) in public hospitals.

The interviews and data analysis revealed that overall hazelnut farming does not appear to yield stable incomes for smallholders, leading them to resort to various strategies in order to make a decent living (for further details and farmers' testimonies, see Annex II).

5.2 Seasonal Migrant Workers' Income and Expenses

5.2.1 Seasonal Migrant Workers' Income

Seasonal agricultural workers labor seven days a week (as long as it does not rain) for 9.5 hours to 10 hours per day—after subtracting a one-hour lunch break and two breaks of 15 minutes each—which amounts to 66 to 70 hours per week. According to Turkish Labor Law (No. 4857), workers cannot be paid below the legal monthly minimum wage.

At the time the fieldwork was conducted, the monthly net legal minimum wage for an adult worker was 1,400 TL, after tax and social security premium payments. A legal workweek is 45 hours, usually divided equally into six days of work and a worker cannot work for more than 11 hours per day (Article 63 of the Labor Law). Workers should be paid 1.5 times the hourly wage for each hour of overtime work.

In the hazelnut sector, contracts are verbal agreements and employers therefore suffer no legal repercussions if they do not follow work rules or pay workers' wages. The exclusion of seasonal migrant workers from the protections of the legal framework exacerbates the problems related to mistreatment of workers and excessive overtime.

The table below presents several wage scenarios relying on information as of the time of the survey:

- Scenario 1: The hourly wage of a seasonal migrant worker is 5.45 TL for a seven-day week (since the workers work 11 hours a day excluding lunch and tea breaks), which amounts to 1,800 TL per month. If this worker were to enroll in the social security system (the majority of workers do not), his/her monthly net wage would be approximately 1,550 TL.
- Scenario 2: If this worker's contract were in accordance with the Labor Law, assuming 66 hours of work and one day of rest and that s/he received the legal minimum wage, the hourly wage would be 8 TL for the first 45 hours in a week and 12 TL for the remaining 21 hours of overtime work. In this case, the worker's monthly net income would reach around 2,400 TL (after deduction of income tax and social security premiums) and s/he would enjoy one day of rest every week. Note that existing regulations prohibit labor intermediaries from charging commissions to workers. If this provision were enforced, this hypothetical harvest worker would therefore not have to pay a 10 percent commission to the labor contractor.

- Scenario 3: If a seasonal migrant worker worked 45 hours a week at the rate of 60 TL per day for 22 days a month (respecting rules on rest days), s/he would earn 1,320 TL per month, which again is below the legal minimum wage.
- Scenario 4: A single worker (not receiving child support) who worked for the minimum legal wage without overtime, would have drawn a monthly net wage of 1,404 TL in 2017.

In fact, interviews with workers revealed that the average income of the worker households, for a household size of eight, was 2,700 TL (around \$730). This figure stands well below the “hunger line” calculated by Türk-İş. Fundamentally, the workers felt that their wages were not fair, and did not reflect the physical effort involved in working in harsh conditions. The wages fell far short of meeting the workers’ basic needs, let alone help them gain full social inclusion in society.

Table 6. CALCULATION OF MONTHLY WAGE FOR SEASONAL MIGRANT WORKERS UNDER DIFFERENT SCENARIOS

	Hourly wage for normal working hours (TL)	Hourly wage for overtime (TL)	Rest day	Working hours per day*	Regular working hours per week	Overtime working hours	Monthly gross wage (TL)	Monthly net wage (TL)	Commission to daybaşı (10%)	Actual monthly wage
Actual conditions (7 days)**	5.45	None	None	11	77	0	1.800**	1550****	180	
Labor Law compliant with overtime	8	12	1	11	45	21	n/a	2400****	forbidden by law	
Labor Law compliant without overtime	8	None	1	7,5	45	0	n/a	1320****	forbidden by law	1.320
Labor law compliant at monthly minimum wage in 2017			1	7,5	45	0	1.777	1404****	forbidden by law	1.404

* Working hours are net of 1-hour lunch break and 2 15-minute tea breaks

** At the wage rate announced by the governorates for seasonal migrant workers and the current working conditions

*** if a worker does not enroll in the social security system and does not pay social security premiums

**** Approximate value if a worker enrolls in the social security system and pays social security premiums

***** Net income after income tax and social security premiums are paid

***** After income tax and social security premiums are paid + minimum subsistence payment for a single person is made

5.2.2 Seasonal Migrant Workers' Household Expenses

In practice, seasonal migrant workers pay 10 percent of their wages to the labor contractor (dayıbaşı) that recruited them. They are provided accommodation, often of poor quality, in shelters or in tent camps, and transportation to and from the fields during the harvest. But workers must cover their food costs, and they pay for travel to and from their hometowns. The overwhelming majority of workers did not have social security coverage, opting to keep what was left of their wages without contributing to social security. Many of them were covered by the so-called “green card,” which provides free healthcare to the very poor.²⁷ However, being outside the social security system means that their labor does not count toward retirement pensions.

Unsurprisingly, the workers interviewed complained that they could not afford to eat a healthy diet. Workers relied mostly on carbohydrates such as rice, pasta, and bread. In the sample, fewer than 25 percent of the workers stated that they regularly ate red meat, although most of them said poultry was a regular part of their diet.

Intertwined with accounts of poor diet and abject living conditions were the stories about indebtedness. Seasonal migrant workers often borrow from the labor contractors who hire them. On average, the interviewed households had a debt of 15,205 TL (for further details and workers' testimonies, see Annex III).

5.3 The Cost of Social Compliance

Seasonal migrant workers face difficult living and working conditions during the hazelnut harvest. How much would it cost to create a safe and decent work environment for hazelnut sector workers, and eliminate child labor and improve living and working conditions?

Accommodations: Accommodation conditions vary greatly between the Düzce and Sakarya regions on the one hand, and the Ordu region, on the other, where conditions were significantly worse. Policies directed at improved accommodations and living conditions for seasonal agricultural workers therefore need to be adapted according to the region.

The research team learned about several projects aimed at improving accommodation conditions of seasonal agricultural workers. For instance, in 2017, supplier firm “A” contributed to the maintenance and repair of 24 shelters in Düzce and Sakarya. The firm completed a feasibility study for each shelter and improved sanitation conditions by providing piped water and water heaters. Roofs were rebuilt when necessary and kitchens were added to the living units. In addition, the same firm purchased washing machines and refrigerators for these 24 shelters. The cost of maintenance and repair for each unit was 5,400 TL (around \$1,500 at the 2017 exchange rate).

Supplier firm “B” chose to build new units for the use of seasonal agricultural workers, rather than repairing existing shelters. The research team visited two construction sites in Akçakoca and Düzce. The field representative of the firm explained that the units, built in collaboration with local

²⁷ According to a report by Hayata Destek Derneği, 77 percent of seasonal farm workers had the green card (Hayata Destek, 2014). An FLA study showed that half of seasonal workers in Ordu and 53.7 percent of seasonal workers in Sakarya-Düzce similarly had the green card, and around 15 percent of those in Düzce and Sakarya had some kind of social security benefit. Seasonal workers surveyed in Ordu did not have social security (FLA 2016).

partners, would be around 50 to 60 square meters in size. The average construction cost of each accommodation unit was estimated at 60,000 TL (around \$16,000 at the 2017 exchange rate), not including furnishings. With the addition of the cost of a basic, 460-liter refrigerator (1,500 TL or around \$410) and of a basic washing machine (800 TL or around \$220), the total cost of a newly-built 60-square meter unit would be approximately 62,300 TL (around \$16,630). Costs could be higher depending on individual preferences. For instance, if supplier firm "B" and its partners decided to install a 32" screen TV in each accommodation unit, the cost of each unit would rise by 1000 TL (around \$270).

In the Ordu region, workers stayed in their own tents, which were generally in quite poor conditions, instead of shelters. The research team suggests constructing container camps in the Ordu region to accommodate seasonal workers. Although the construction of container camps could be quite costly, once set up, they would be long-lasting and easy to maintain.

The research team asked Özge Yapı, a construction firm based in İstanbul, to prepare a proposal for a container camp able to accommodate 2,000 people with the following specifications:

- 250 containers: Each container would measure 21 square meters (3x7 m) and could accommodate eight people in bunk beds.
- 176 containers: These containers would meet workers' toilet and bath needs. There would need to be one toilet and bath for every 11 people. Each container would measure 14.4 square meters (2.4x6 m).

The construction company would be responsible for door and window hardware; floor coverings; construction of infrastructure for electricity and sewage (armatures and showerheads are not included); transportation of containers to the camp; and setting up the containers. The total cost of the project in US dollars would be around \$2,221,000. Özge Yapı stated that construction could be completed in 80 days.

This price does not include the cost of preparing the ground for the containers by pouring concrete to avoid mud and flooding when it rains. The research team calculated that 15,000 square meters should be covered with C16 or C20 type concrete, which is 20 cm in thickness. This work would require 3,200 cubic meters of concrete, at a cost of 466,900 TL at current prices (around \$126,189).

Each camp would require two permanent guards for the day and night shifts, to prevent intruders damaging the infrastructure or containers during off-harvest months. The guards would also improve the security of seasonal agricultural workers. Some of the workers interviewed stated that they do not feel safe, particularly during the night. The security guards would need to be employed full time for 12 months. Their combined yearly wages would amount to 24,348 TL (around \$6,580).

Summer Schools: Summer schools, also known as safe spaces, are one of the most important mechanisms to prevent child labor in seasonal agricultural work. Several civil society organizations and public bodies have worked together to provide education and several courses to children in Düzce, Sakarya, and Ordu.

Summer schools face two primary challenges. One is the insufficient number of safe spaces in the region. An official from the Akçakoca district directorate of the Ministry of National Education mentioned that last year the summer schools only met the needs of 22.9 percent (366 out of 1,600 eligible children) of school-age children in the Akçakoca region. "We cannot afford to have 1,600 children attend summer schools. We neither have the infrastructure nor the resources," he stated. However, several interviewees (company representatives, civil society organizations and

representatives of public agencies) argued that summer schools play a vital role in prevention of child labor and should be strengthened.

A second issue is the cost of summer schools. Operating a summer school in Düzce, Ordu, or Sakarya requires at minimum two teachers, one preschool teacher, 15 volunteers, and three administrative workers (including janitors). In addition, the cost of maintaining the school building, the cost of meals (14 TL or around \$3.8 per day per student in 2017 for the school in Esmahanım village), materials distributed to the students (43 TL or around \$11.6 per student in 2017), and transportation, which cannot be calculated precisely due to varying distances between worker shelters and safe spaces in the western Black Sea region, have to be taken into account. Genç Hayat Foundation explained that transportation was a major expense, which could reach up to 1,500 TL (around \$405 at the current exchange rate) per school in 2017. The cost of operating each school in 2017 was estimated to be around \$80,000.

A representative of supplier firm A explained that, as an important instrument to fight child labor, summer schools need to become sustainable. For that to happen, she argued, stakeholders need to itemize the costs of operating summer school and each item should be co-financed, presumably between the public sector and private sector companies. She stressed the need to urgently upgrade the roads between villages in Akçakoca and Sakarya, as their poor quality was a major factor and increased the cost of transporting the students and causing low attendance.

Protective Gear and Equipment: The research team found that workers in Düzce, Sakarya, and Ordu do not use any meaningful protective gear or any other personal protection equipment (PPE). To work safely, workers harvesting in the steep slopes in the gardens in Ordu require wearing non-slippery footwear and security ropes. The research revealed that it is possible to get a pair of shoes with Vibram soles (a nonslip sole) for 70 TL (around \$19), while a security rope and safety belt can be purchased for 36.5 TL (around \$10). Provision of these items to the workers would considerably increase the harvesters' safety, especially in Ordu.

PPE Package²⁸	
<i>Item</i>	<i>Unit Cost 2018</i>
2 masks	15 TL (\$4.1)
first-aid emergency kit	40 TL (\$10.8)
Hat	20 TL (\$5.4)
2 pairs of gloves	20 TL (\$5.4)
non-slip shoes	70 TL (\$19)
security rope and safety belt	36.5 TL (\$10)
belt bag	40 TL (\$10.8)
sanitary pad	13 TL (\$3.5)
wet wipes	7 TL (\$1.9)
t-shirt	20 TL (\$5.4)
liquid soap 500 ml	11 TL (\$3)
shampoo 400 ml	11.5 TL (\$3.1)
Total Cost	304 TL (\$82.4)

In 2017, an international food and beverage company provided 3,000 hazelnut harvesters with a welcome package that included: mask, first-aid emergency kit, hat, gloves, belt bag, sanitary pads for women, wet wipes, t-shirt, liquid soap and shampoo. The research team collected market prices for these items, and added the cost of non-slip shoes, security rope, and safety belt, which had not been included in the package. The table below lists items the research team recommends for distribution to all workers above the age of 16:

Other Steps for Improving the Conditions of Seasonal Workers: The FLA and an international food and beverage company helped finance the development of an

application, called FLAConnect, which provides an online two-way communication and grievance

²⁸ Please note that these are retail prices. If the goods were purchased at wholesale prices, the prices should be significantly lower.

mechanism. Through this application, which workers can install on their smartphones, they can communicate problems and complaints directly to the FLA.

The certification of labor contractors is another step that could help prevent child labor and improve monitoring systems pertaining to workers' demands. and problems. Supplier firm B²⁹ reached out to all labor contractors in its supply chain to create a labor supply map containing information on workers' hometowns and the number of children travelling with the adult workers. This effort resulted in the creation of a labor contractor database. Within the scope of this project, supplier firm B provided trainings to selected labor contractors in Mardin and Urfa, who were then certified by the Turkish Employment Agency (İŞKUR). A total of 277 labor contractors have been reached and registered as of the conclusion of this project. The cost was \$63,151.

6. CONCLUSION

This study mapped the price of hazelnuts, focusing in particular on the activities of hazelnut farmers and the seasonal migrant workers who harvest the hazelnuts. The research team sought to decompose farmers' labor and input costs. It analyzed farmers' various sources of income, from hazelnut cultivation as well as wages, pensions, and state support, and their household expenditures, and listed their expenditures.

Based on qualitative and quantitative findings, this study gives a strong indication (although not a statistically generalizable statement) that the current price of hazelnuts, and prevailing technological and agricultural conditions in the hazelnut sector, do not generate high profits for farmers. Worse still, many farmers are actually indebted.

The research team also analyzed seasonal migrant workers' income from the hazelnut harvest, as well as other sources of income, and investigated their expenditures during and outside the harvest season. Seasonal migrant workers are caught in a spiral of debt to relatives, labor contractors, and money lenders. Their working and living conditions during the hazelnut harvest are dire. The income they derive from their work in the hazelnut gardens does not meet the legal minimum wage and is well below a living wage.

One clear conclusion is that under current pricing conditions, hazelnut farmers would not be able to pay living wages to the workers. As mentioned in this report, many farmers cut corners by reducing inputs (implements, fertilizers, pesticides, and the labor needed for their use). They cannot economize on harvest labor. Instead, they seek to get the highest productivity from harvest labor by intensifying the work. Harvesters face long workdays, but farmers sometimes still demand more effort. The daily wage set by the governorates, the customary working hours (accepted by the farmers, enforced by the labor contractors, but questioned by the workers), and the precariousness of their working conditions, support the farmers' demands. If working hours were set at legal levels (45 hours a week, one rest day per week, with overtime payment above 45 hours), the farmers would be compelled to employ more workers for the harvest. A higher wage bill for the harvest would however eat into their already low profits. Likewise, providing safety equipment, and safe transportation between farms and camps would increase farmers' operating and input costs, and cause a further decline in their incomes.

²⁹ Supplier firm B declined our requests for a face-to-face or a Skype interview. Hence, the research team had to e-mail the questions to their representatives. The information cited in the rest of this section was retrieved from their reply to our e-mail.

Based on this report, one can infer that the low price of hazelnuts perpetuates low wages, long working hours, intense working conditions, and the continued use of child labor during the hazelnut harvest. Particularly, it provides a clear indication that farmers could not pay living wages under the given conditions in the hazelnut sector.

Unfortunately, it is not possible to make quantitative estimations about the relationship between the price of hazelnuts and living wages and working conditions, for two reasons: for one, the non-representative nature of the collected data precludes such a calculation. But more importantly, one cannot establish a correlation between the price of hazelnuts and living wages for workers because many variables, which cannot be controlled, might affect this relationship.

7. RECOMMENDATIONS

Based on the findings of this report, the research team makes the following recommendations to the Turkish government and to exporters and international buyers of Turkish hazelnuts to improve conditions and standards of workers during the hazelnut harvest and improve farmers' conditions.

7.1 To the Government of the Republic of Turkey

7.1.1 About labor conditions

Social security and registered employment

1. The Ministry of Labor and Social Security (MoLSS) should expedite the development of a registration mechanism for adult hazelnut harvest workers and labor contractors. The government should, in particular, consider bringing seasonal agricultural workers under the purview of Labor Law no. 4857 (which currently excludes agricultural workers in workplaces with fewer than 50 workers, as per Article 4(b)). This would help ensure that all workers are registered in the social security system, thereby opening the way to treating them the same as other formal workers. In this context, the MoLSS should consider establishing a network of labor bureaus that would employ the workers formally in each district, to replace workers' current individual informal contracts with farmers. The district directorates of social security institutions (SGK) should also provide incentives to farmers to encourage them to work with seasonal agricultural workers registered with the social security agency.
2. The MoLSS should actively encourage the registration and certification of labor contractors (dayıbaşları), to have them operate formally in accordance with applicable law.

Inspections

3. The MoLSS should expand labor inspections of agricultural workplaces and carry out regular monitoring and inspection of hazelnut fields. Labor inspectors should control wage and overtime payments, wage arrears, and working conditions. The MoLSS, in coordination with national and local security forces, should consider enhancing inspection of workers' accommodations during the harvest season, with the goal of preventing violations of the Labor Law and the Occupational Health and Safety Law (no. 6331)

Infrastructure

4. District and provincial governorates should consider improving and paving rural roads connecting villages to each other and to district and provincial centers to ensure the safe daily transportation of workers from camps/shelters to the hazelnut gardens.
5. The MoLSS should develop schemes involving local authorities, exporters and international firms to raise funds to construct basic housing units that are protected from flooding, have electricity and piped water, and are equipped with sufficient kitchen and bathroom facilities for family or community use.

Living wage

6. The MoLSS should calculate a living wage for seasonal migrant workers. The government should work in tandem with industry members in the endeavor.

7.1.2 About hazelnut farming

Farmer Registration System

7. The government should consider expediting the completion of the Farmer Registration System and carry out a new agricultural survey.

Incentives and support schemes for farmer communities

8. The Ministry of Agriculture and Forestry (MoAF) should consider building market-oriented institutions to support Turkish hazelnut farmers. This may involve the elimination of market-distorting policies, on the one hand, and strengthening those that assist producers, on the other hand. Actions might include, but are not limited to, eliminating income support to farmers based on acreage of land in favor of productivity-based subsidies, and restricting the expansion of acreage of sub-optimal land or land without legal tenure, on which hazelnuts are cultivated. While the ostensible goal of the government's current policies is to help farmers raise their production levels, and hence their income from hazelnuts, they have the opposite effect of increasing output while simultaneously lowering productivity, putting downward pressure on the market price of hazelnuts.
9. The MoAF should take steps to promote greater efficiency in hazelnut farming through improved techniques. As mentioned in this report, hazelnut trees in Turkey are aging. The government should encourage the planting of new hazelnut trees.
10. The MoAF should provide incentives to encourage younger generations to become hazelnut farmers.
11. The MoAF should consider mechanisms to improve farmers' financial literacy, so they can have a better understanding of the relationship between prices, profits, yields on investments, and costs, including the cost of credit.
12. The MoAF should consider developing the legal framework and assist in the creation of local cooperatives or producers' unions, which can introduce productivity-increasing

agricultural practices and promote the use of labor-saving technologies in hazelnut harvesting.

Licensed Warehousing

13. Wider availability of licensed warehousing would allow farmers to dispose of their output at the most propitious times based on market information, while helping the government to manage supplies over two-to-three-year periods. Wider availability of warehousing might also reduce or eliminate the haphazard role played by the Turkish Grain Board (TMO) in purchasing hazelnuts. So long as the TMO continues its policies of (a.) buying a limited amount of the annual output, and (b.) making purchases on an ad hoc basis, such purchases might have a destabilizing effect and harm, rather than increase, farmers' incomes. The Ministry of Agriculture and Forestry should encourage the use of warehouses belonging to the now-defunct Union of Hazelnut Producers' Cooperative (Fiskobirlik), which are currently idle, for such purposes. The government should also lease the Fiskobirlik facilities directly and put them under the control of the district directorates of MoFAL. These licensed warehouses should be made available to farmers at affordable prices to encourage them to use them and discourage farmers from returning to the old practice of leaving their product with local manavs for safekeeping.

Increase value addition through geographical indication and certifications

14. The MoAF should encourage farmers to take steps to increase the value-added aspects of their production and assist them toward this goal. Ways to increase value-added could include the creation of geographical appellations for certain varieties and location of production of hazelnuts to increase the price and promote production of hazelnut farming. Geographical appellation is an instrument that reveals the origin of a product and can be used as a sign indicating a distinct quality associated with a certain region or country. Mobilizing this instrument and certifying Turkish hazelnuts accordingly could be a major mechanism to address farmers' complaints about low prices, as would the promotion of organic hazelnut production which currently accounts for an insignificant portion of total volume given the increasing market share of organic products within the global food market.

Access to basic services

15. Hazelnut growers, especially full-time farmers who live year-round in the region, struggle to lead a dignified rural life. The Ministry of National Education and the Ministry of Development should consider improving access to basic services such as health and education in rural areas, to support hazelnut farming and encourage the younger generation to maintain family farming traditions.

Fostering dialogue and creating a multi-stakeholder monitoring body

16. In collaboration with industry members, the Ministry of Economy and the Ministry of Agriculture and Forestry should call for and support the formation of a national multi-stakeholder roundtable to find solutions to problems of the Turkish hazelnut sector.
17. The Turkish government should support the formation of an umbrella organization for the Turkish hazelnut sector, comprised of government officials, representatives of international

suppliers, confectioneries, and of farmer interests, that would supervise the sector, provide market information to avoid oversupply and implement a system of forward sales of hazelnuts to stabilize prices before a harvesting season starts. The research team is not advocating a revival of Fiskobirlik, the former cooperative that had turned into an organization of local patronage by the 2000s. However, the research team suggests that the institutional expertise and memory of Fiskobirlik be revitalized in shaping local cooperatives, while avoiding past mistakes.

18. The MoLSS together with MoAF should calculate a living wage for farmers. In this effort, the government should work in tandem with industry members.

7.2 To Industry Members

The following policy recommendations are intended for the major hazelnut-exporting firms in Turkey, as well as international buyers and global confectionery firms.

7.2.1 About labor conditions

Efforts by various stakeholders (such as international confectionery firms and suppliers) to eliminate child labor and improve working conditions of seasonal agricultural workers in the hazelnut sector in the past several years are commendable. However, much still needs to be done. The following are some suggestions in that direction.

Social security and registered employment

1. Following on a recommendation to the government, the responsibility of industry members for ensuring decent working conditions could be bolstered if seasonal agricultural workers came under the full purview of the Labor Law. Although hazelnut suppliers and international buyers are not “principal employers” with respect to workers used by a “subcontractor” under the Labor Law (article 2), they should nevertheless assume a significant level of responsibility regarding labor conditions in the hazelnut harvest because of their commanding position in the hazelnut market. The research team recommends that industry members demand enforcement of existing laws from the government.

Allocation of funds

2. The research team suggests that industry members reserve a small share of their hazelnut-related annual revenue (for example, 0.01-0.03%) to establish a fund, to be used to sustain efforts to improve working conditions of seasonal agricultural workers and eliminate child labor. This fund should be placed under the control of an organization specifically tasked with the promotion of social compliance in hazelnut harvest in Turkey, consisting of industry members, public bodies, and civil society organizations. The FLA could be the body in charge of overseeing the implementation of projects funded by this organization as well as spending realized under this scheme. The following are some activities for which this fund could be used:
 - a) Improving labor conditions and eliminating child labor by ensuring that workers are paid a decent (living) wage and provided with proper equipment and decent

accommodation conditions. The research team also believes that the industry should continue to invest in summer schools to keep children away from hazelnut gardens.

- b) Employing occupational health and safety experts during the hazelnut harvest across the entire region and using these experts to provide training to both farmers and workers.
- c) Providing personal protection gear to workers, as described in this report. After registering the workers upon their arrival to the region, the government should determine workers' eligibility for receiving protective equipment. The research team suggests that every worker above the age of 16 should be given protective gear.
- d) Given that seasonal agricultural workers' social security coverage remains low, for reasons described in this report, industry members should consider assuming responsibility for payment of a portion of workers' social security premiums to ensure that workers are duly covered under social security.
- e) Building humane and decent accommodation units for seasonal agricultural workers during the hazelnut harvest.
- f) Investing in, and expanding, the responsible sourcing projects that they have initiated in the past three years for keeping children away from workplaces and helping them continue their schooling, training, and enjoying their childhood during the harvest season in well-equipped schools and playgrounds. Particularly, private sector companies should consider raising and earmarking funds for making the summer schools sustainable, and seek ways to collaborate with public authorities, as well as with civil society organizations, for this purpose.

Collaborating with local authorities to improve working conditions

- 3. Industry members should address the chronic issue of excessive and abusive working hours for harvest workers and the lack of a paid weekly day of rest. They may actively collaborate with local public authorities and farmers to make improvements on these issues.

Living Wage

- 4. Industry members should support the Turkish government by calculating a living wage for a typical seasonal migrant household annually before the start of the harvest season. Additionally, industry members should demand from all suppliers that they pay the living wage calculated by industry members.

7.2.2 About hazelnut farming

Industry members and farmers are on different sides of the market as buyers and sellers but, their interests converge as long as there is growing global demand for hazelnuts.

Enhancing and coordinating Good Farming Practices

1. Suppliers and confectionery firms should cooperate with farmers to promote the implementation of good farming practices that would increase hazelnut productivity. However, these efforts will yield better results if they are coordinated. An umbrella organization, comprised of officials, international suppliers, confectioneries, and farmer representatives should be established with the encouragement of the state to coordinate these efforts.

Increase value addition

2. Global confectionery firms may consider developing and marketing new products that use hazelnuts with geographical indications, organic hazelnuts or hazelnuts produced under fair labor practices.

Farmer participation in responsible sourcing programs

3. There is a need to devise new approaches that would bolster farmer participation in the implementation of social compliance in the hazelnut harvest in order to increase the success rate.

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